



State of Idaho

DEPARTMENT OF WATER RESOURCES

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File

June 15, 1999

DIRK KEMPTHORNE  
GOVERNOR

KARL J. DREHER  
DIRECTOR

JOHN MCCRAY  
2470 COBBLESTONE  
IDAHO FALLS ID 83404

RE: Water Right Nos. 34-00600, 34-00606 from Alder Creek

Dear Mr. McCray:

This letter is in response to my visit to your and other's Alder Creek property on June 8, 1999. It addresses my findings, department concerns, and recommendations for possible measuring devices.

During my visit, I gps located your diversion and the area where water was being applied. Although I did not measure the diversion, I estimate that approximately 4 to 5 cfs was being diverted from Alder Creek, down a recently refurbished ditch approximately 1/3 mile long.

Near the end of the ditch in the SENE quarter of section 13, several turnouts allowed water to flood irrigate alfalfa. Flood irrigation water was progressing in the East by Northeast direction towards and into the NENE quarter of section 13. I walked around much of the wetted area, which is depicted on the attached map. Approximately 3 to 4 acres were wetted within the gps-located area. The flood irrigation may be beneficial to more acres through subsurface wetting. It appears irrigation is occurring in each 40 acre-tract of the NE quarter of section 13, Township 06N, Range 24E, BM. Although total irrigation appears less than 25 acres (the amount authorized by the above rights), these water rights do not authorize irrigation in the NENE quarter of section 13. The rights do authorize the following irrigation:

<u>Acres</u>	<u>Quarter-quarter of section 13</u>
9	NWNE
9	SWNE
7	SENE

Irrigation outside of these authorized lands must be curtailed. If you would like to irrigate in the NENE quarter, an application for transfer should be filed with the department.

Earlier on this same day, Doug Rosenkrance and I visited two diversions upstream of yours. The first was Rosenkrance's diversion in section 14, depicted on the map as a0007597. It was

diverting 4.6 cfs per my measurement (notes enclosed). Note that this quantity is less than the authorized amount of 5.0 cfs for Water Right Nos. 34-00365A, 34-12050. Gould's diversion in section 22, depicted as a0007598, was shut off and was not diverting water.

You also asked me to observe the intersection of Alder Creek with the Darlington Canal. It appeared that flows into and out of the Darlington Canal at this location were nearly equal.

Water Right Nos. 34-00600 and 34-00606 authorize a diversion rate of 0.50 cfs for irrigation. The rights also authorize 0.02 cfs for instream stockwater. Based on my estimate of your diversion, it appears that your current diversion rate is nearly 10 times the authorized quantity. Your diversion must immediately be reduced to a quantity more closely representative of the authorized rate of 0.50 cfs.

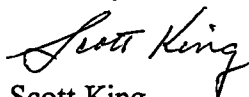
Also enclosed with this correspondence is further information regarding measuring devices as we had discussed. One document titled "Water Measurement" discusses the basics of weir and flume installation and gives several examples. I think that a V-notch weir would yield the most accurate results in your situation. It also would be economical, but would require about 3" more head than a 1 foot rectangular weir. If you choose a Rectangular or Cipolletti weir, I recommend a crest length of 1 foot. These sharp crested weirs require an upstream pool so that water approaches the blade at a low velocity. Sediment tends to drop in this pool, causing a buildup of sediment in the bottom of the pool. When this buildup approaches the weir crest, accuracy is diminished and the sediment must be removed for accurate measurement.

A Parshall flume passes sediment and debris better, but would likely be a bit more costly. A 6 inch Parshall will pass 0.50 cfs at about 0.41 feet of head.

We also discussed the Ramped Broad-Crested Weir (RBCW) which passes sediment and debris very well. Enclosed is a copy of the dimensions of a prefabricated model available from Honkers Supreme in Twin Falls. This portable unit is fiberglass construction, and would therefore be more susceptible to damage from cattle or frost.

I encourage you to discuss further flow measurement questions with either myself or with the district Watermaster. I would much rather answer questions beforehand than have unsatisfactory measurements in the future. If you have any questions about this matter, please let me know. I can be reached by mail at the above address or by phone at (208) 327-7897.

Sincerely,

  
Scott King

Enclosures

Cc: Doug Rosenkrance  
Tim Luke